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09/526,173	03/15/2000	Isao Imamura	1714.0029	9971

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FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

TUGBANG, ANTHONY D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 12/19/2002

10

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/526,173

Applicant(s)

IMAMURA, ISAO

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Response to Amendment*

1. The applicant's amendment filed 9/25/02 (Paper No. 9) has been fully considered and made of record.

### *Election/Restrictions*

2. Claim 7 continues to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

### *Claim Objections*

3. Claim 4 is objected to because of the following informalities: the phrase "an ink-repellent" (line 2) should be recited as --said ink-repellent--. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagawa et al 5,458,254, referred to hereinafter as Miyagawa'254, in view of Miyagawa et al 5,331,344, referred to hereafter as Miyagawa'344.

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Miyagawa'254 discloses a method of manufacturing an ink jet recording head comprising: preparing a base plate 1 having ink ejection pressure generating elements 2 (in Fig. 1); forming a liquid path pattern 4 on the base plate with the use of a soluble resin (see col. 9, lines 50-55); applying a first active energy setting material (resin film 5) on the base plate and the liquid path pattern (see Fig. 3); applying an ink-repellent second active energy setting material (resist 6) on the first active energy setting material (see Fig. 4); exposing the first active and the ink-repellent second active energy setting materials (see Fig. 5); developing the first active and the ink-repellent second active energy setting materials with an aqueous solution (see col. 16, lines 41-46) to form an ejection port 7 above the ink ejection pressure generating elements 2 (see Fig. 6); and removing the liquid path pattern 4 in its entirety (see results of Figs. 6 and 7).

Regarding Claims 2 and 4, Miyagawa'254 teaches that the ink-repellent second active energy setting material 6 is sprayed by fine particles of spin coating, which includes a drying process of either sputtering, vacuum deposition, or hardening through baking, to apply the ink-repellent second active energy setting material (see col. 11, lines 40-56) on the base plate.

Regarding Claim 5, Miyagawa'254 further teaches that the first active energy setting material 5 can include the composition of an epoxy resin (see col. 10, line 51 to col. 11, line 12).

Miyagawa'254 teaches substantially all of the limitations of the claimed manufacturing method except that the liquid path pattern is formed on the base plate by applying light through a mask and developing afterward.

Miyagawa'344 teaches forming a liquid path pattern (photosensitive layer 3 in Fig. 2) on a base plate 1 with the use of a soluble resin (see col. 10, lines 52-58), by applying light through

a mask 4 (see Fig. 3) and developing the liquid path pattern 3 afterward (see col. 12, lines 24-37). One such advantage of the above process provides for a liquid path pattern that has a high production yield (see col. 2, lines 10-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the liquid path pattern of Miyagawa'254 by applying light through a mask and developing afterward, as taught by Miyagawa'344, to positively provide a liquid path pattern that has a high production yield.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagawa'254 in view of Miyagawa'344, as applied to Claim 1 above, and further in view of Chambers et al 4,429,027.

Miyagawa'254, as modified by Miyagawa'344, discloses the claimed manufacturing method as relied upon above, further including that the ink-repellent second active energy setting material 6 is a photoresist mask made from a silicon oxide composition (see col. 16, lines 13-15). However, the modified Miyagawa'254 method does not teach that the ink-repellent second energy active setting material is characterized by a flexographic printing method.

Chambers teaches a photoimaging process in which the photoresist or photomask is created directly on the surface to be processed, which simplifies the manufacturing process (see col. 1, line 60 to col. 2, line 5). This photoimaging process is considered to be a flexographic printing method by including the formation of the photoresist or photomask as a flexographic printing plate (see col. 6, lines 24-32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the ink-repellent second energy active setting material of

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Miyagawa'254 by utilizing it as a flexographic printing plate, as taught by Chambers, to achieve the same art recognized equivalents of exposing and developing the first active and the ink-repellent second active energy setting materials, which would simplify the overall manufacturing process saving production time and costs.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagawa'254 in view of Miyagawa'344, as applied to Claim 1 above, and further in view of Yasui et al 4,536,468.

Miyagawa'254, as modified by Miyagawa'344, discloses the claimed manufacturing method as relied upon above and further including that the ink-repellent second energy active setting material 6 is a photoresist mask made from a silicon oxide composition (see col. 16, lines 13-15). However, Miyagawa'254 does not teach that the second energy active setting material is an epoxy resin cured by cationic polymerization.

Yasui suggests that photoresists can comprise compositions of either silicon resins or epoxy resins, which are cationic, polymerized compounds (see col. 5, lines 39-53) and provide the advantages of having a photoresist pattern of a very high resolution (see col. 1, lines 4-19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the second energy active setting material of Miyagawa'254 by forming the material with an epoxy resin, as taught by Yasui, to positively provide a photoresist of second energy active setting material with a high resolution of patterning.

***Response to Arguments***

8. Applicant's arguments filed 9/25/02 (Paper No. 9) have been fully considered but they are not persuasive.

In regards to the merits of Miyagawa'254, the applicant contends that Miyagawa'254 does not teach 1) forming an ejection port not including an oxygen plasma etching, and 2) applying an ink-repellent second active energy setting material on a first active energy setting material.

The examiner most respectfully traverses. Miyagawa'254 forms an ejection port 7 with an aqueous solution (see col. 16, lines 41-46). Whether the ejection port is formed to include, or not include, oxygen plasma etching is not claimed and it appears that the applicant is arguing more specifically than that which is claimed. It is noted that limitations from the specification are not read into the claims. *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With respect to the ink-repellent second active energy setting material, the examiner has broadly read the silicon oxide film 6 as being equivalent to the claimed "ink-repellent second active energy setting material", being that the claims do not require any other function of the "ink-repellent second active energy setting material" other than being applied on the first active energy setting material through a drying process and developing of the "ink-repellent second active energy setting material". Furthermore, what would preclude the silicon oxide film 6 from being ink repellent? The examiner's position is that during operation of the ink jet head, silicon oxide film 6 would be considered ink-repellent to the extent that ink would flow through the ejection ports 7 and not adhere to the silicon oxide film 6. Therefore, the silicon oxide film 6 can be said to be an "ink-repellent second active energy setting material".

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In response to applicant's arguments against the references individually (i.e. Chambers et al and Yasui et al), one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 9:00 am - 5:30 pm.

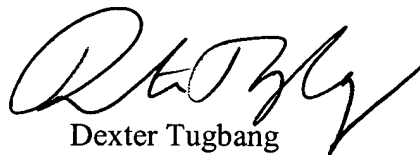
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the



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organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

A handwritten signature in black ink, appearing to read 'Dexter Tugbang', is positioned above the printed name.

Dexter Tugbang  
Examiner  
Art Unit 3729

adt  
December 13, 2002